

Add the cool factor: An empirical investigation of the effect of positivity and pictorial images on review coolness

Full Paper

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Abstract

Cool excites, attracts, drives trends, stands out, and is considered a characteristic quality of appealing brands, products, or people. Despite the value cool online reviews provide to review contributors by drawing attention and peer recognition to them, and the potential value of cool reviews to focal businesses being reviewed, little has been done to understand what factors impact user perception of coolness in online reviews. In this paper, we explore some of these factors. We find that positive and favorable reviews are more likely to be perceived as being cool compared to negative and unfavorable reviews. Similarly, having pictorial images increases the likelihood of an online review being perceived as cool. However, we do find that the inclusion of pictorial images in online reviews is skewed towards highly positive reviews suggesting that review contributors may be adding pictorial images to support their very favorable reviews compared to unfavorable reviews.

Keywords

Cool, coolness, pictorial images, pictures, online reviews, review positivity

Introduction

In recent times, consumer online reviews have become an integral part of many online product and service marketplaces (e.g. Amazon.com, odesk.com) and the core service of third-party online review platforms (e.g. Yelp.com, Cnet.com). Online review platforms not only provide information for decision making to users, they also act as online communities providing social benefits such as attention, peer recognition, and reputation to users. Some of these benefits are not just online, but offline too. For instance, Yelp.com provides certain privileges to its “elite” reviewers such as access to exclusive events (Andrea, 2012). For users of online review platforms, the possibility of gaining attention or peer recognition can serve as motivation to contribute reviews (Hennig-Thurau et al. 2004; Shen et al. 2015). In competing for the available social benefits such as attention and peer recognition, review contributors continuously devise strategies for contributing winning reviews. For instance, Shen et al (2015) find that reviewers seeking attention are more likely to contribute reviews for popular product items with less crowded reviews. Review contributors may also differentiate themselves by the numeric or star rating they give to products that they have reviewed and by providing useful or helpful reviews as most review platforms award badges of recognition based on a combination of number of reviews and usefulness votes a review contributor has amassed (e.g. Amazon.com).

Aside from contributing useful reviews, another strategy that can help online review contributors gain such social benefits as peer attention in online review community is the contribution of “cool” reviews. *Cool* excites individuals especially consumers and can drive trends (Gladwell 1997; Heath and Potter 2005). *Cool* stands out and is considered desirable by an audience evaluating coolness in brands,

including people and products (Dar-Nimrod et al. 2012; Rodkin et al. 2006) and cool provides some form of utility. Therefore posting cool reviews can make review contributors stand out, be desirable, and can be used to draw user attention and peer recognition. Further, cool reviews not only benefit the review contributor who may be seeking peer recognition, it also benefits the focal business or product under review. For instance, a cool review will rub off on the focal business, serve as earned media (Cocoran, 2009) while drawing attention to the business. Businesses can also capitalize on the potential of cool reviews by strategically managing those reviews (Campbell et al. 2014).

This paper focuses on exploring the factors that affect user perception of online review coolness. Specifically, we empirically investigate the effect of review positivity and the presence of pictorial images on the perceived coolness of online reviews. Given that extant research has mostly focused on review helpfulness (Mudambi and Schuff 2010; Yin et al. 2014) and usefulness (Bakhshi et al. 2015; Korfiatis 2008), this study not only contributes to the literature on consumer online reviews by extending coolness into the online review context, it also increases our understanding of factors that contribute to coolness expression and perception by users which provides design insights to review platform providers who may like to enable features that extend users' utility benefits beyond usefulness. Further, this work contributes to the overall literature on coolness (Rodkin et al. 2006; Warren and Campbell 2014).

Literature Review

Online Reviews

Online reviews are peer-generated product or service evaluations posted on company websites or third party review platforms like Yelp.com and Cnet.com (Mudambi and Schuff 2010). There is a significant body of research on online reviews. Extant research with a focus on firm perspective have examined the impact of online reviews on sales (Chevalier and Mayzlin 2006; Dellarocas et al. 2007), firm value and performance (Luo 2009; Tellis and Johnson 2007), and new product adoption (Chintagunta et al. 2010). These studies show that positive online reviews positively affect sales, lead to higher firm values, and foster new product adoption. Another body of work has focused on the effect of online reviews on consumer decision making and have shown that online reviews help inform consumers and help reduce the uncertainty surrounding their shopping experience (Dellarocas 2003). A sizeable amount of studies have investigated the characteristics, properties of reviews and factors that make online reviews helpful (Cao et al. 2011; Mudambi and Schuff 2010; Peng et al. 2014). Mudambi and Schuff (2010) find that for experience goods, extreme reviews are less helpful and that reviews with depth are more helpful. Other areas that have been investigated include the emotionality of online reviews (Ludwig et al. 2013; Peng et al. 2014; Yin et al. 2014), the effects of reviewers characteristics (Forman et al. 2008; Hu et al. 2008), and the presence and effects of self-selection bias (Li and Hitt 2008).

Coolness

Although there is no consensus definition of coolness among researchers, owing to its varied and changing connotations, a significant amount of work have examined the concept (Dar-Nimrod et al. 2012; Rodkin et al. 2006). Dar-Nimrod et al (2012) investigates what makes people cool and found that individuals with socially desirable characteristics and a touch of rebellion are considered cool. Warren and Campbell (2014) find that individuals perceive brands or people as cool when they are autonomous or diverge from the norm without being excessive. However, they conclude that the relationship between divergence from the norm and the perception of coolness is curvilinear. That is to say that very little or extreme divergence from the norm is bad for coolness. Rodkin et al (2006) find that among non-aggressive children, being popular is cool. Belk et al (2010) notes that consumers use the word "cool" as an expression of admiration and approval. The literature on coolness, however, agree that cool is subjective and socially constructed (Belk et al. 2010; Leland 2009), and is perceived as being positive and desirable.

Information Presentation and Pictorial Images

There is a rich body of research in information systems (IS), marketing, and psychology literatures investigating how the presentation of information affects decision makers or consumers. These studies suggest that the way information is presented to individuals do not only affect their cognitive responses

(Jiang and Benbasat 2007), but also their affective response (Schupp et al. 2000) and satisfaction (Szymanski and Hise 2000). Studies investigating the inclusion of pictorial images in communication show that pictorial images in communication have an effect on individual perception, attitude formation, and recall ability. For instance, Starch (1966) found that people recalled seeing a print advertisement when a picture was included than when it was not. Rossiter and Percy (1978) posit that the inclusion of large images in advertising can lead to attitude formation triggered by affective responses. Thereby suggesting that the inclusion of pictures may stimulate an individual's emotions. Further, Edell and Staelin (1983) conclude that pictorial advertisements result in more favorable product beliefs and brand attitude. More recently, Sojka and Giese (2006) suggest that a combination of pictures and verbal stimulus leads to positive attitude formation towards ad and brand among people who are both affective and cognitive processors of information.

Theoretical Development and Hypotheses

Pictorial Images and Review Coolness

Coolness implies being desirable, trendy, and out of the norm without being excessive (Dar-Nimrod et al. 2012; Warren and Campbell 2014). Although pictorial images have been used to convey information, using pictorial images in online reviews is not the conventional means of conveying information in the online review context. This makes using pictorial images in online reviews out of the norm. When review posters add pictures to their online reviews, they not only make their reviews more vivid or more helpful, they also go with the trend of what is considered “cool” or *hip*. Anecdotal evidence show that picture sharing social media platforms like *Instagram* and *Snapchat* are not only the “cool” social media platforms, but also the use of pictures and picturesque images like *emojis*¹ and *memes* in online communications on these platforms is considered cool among teenagers and young adults.

Pictorial images depict a visual appeal which is often difficult to describe using textual cues (Mandl and Levin 1989). They present information which are more vivid (Taylor and Thompson 1982). Edell and Staelin (1983) point out that when compared to verbal text, pictures are more attention-getting, pleasant, and easier to process. They also provide richer information in the form of visuals which textual cues do not provide. Sojka and Giese (2006) suggest that a combination of pictures and verbal stimulus can influence individual perceptions and lead to attitude formation especially among individuals who are both affective and cognitive information processors.

Put together, these arguments on pictorial images in communication therefore suggests that online reviews with pictorial images are likely to attract and hold the attention of a review reader while exciting his or her imagination to the extent that the online review is emotionally interesting and proximate in a sensory manner. This can then impact on the review reader's perception of how cool the online review is. Therefore we hypothesize that:

H1. Compared to reviews without pictorial images, reviews with pictorial images will have a higher coolness perception.

Review Positivity and Coolness

Coolness is perceived as being a positive trait (Bird and Tapp 2008; Heath and Potter 2005) and is mostly perceived in appropriate positive contexts. Cool is not inferred or perceived in negative contexts. Warren and Campbell (2014) suggests that coolness is perceived when the context is appropriate. They further point out that coolness is constructed in a positive context. For instance, while a sports celebrity will be perceived as cool for winning with an unconventional style in a sport, the same celebrity will not be perceived as cool if associated with scandalous behavior off the field. Similarly, a brand, business, or profession associated with negative events will not be perceived as cool (e.g. funeral homes, being a mortician). Basically, cool is perceived in the light of positivity rather than negativity. Hence, we argue

¹ Emojis are graphic symbols or pictograms that represent an idea or concept independent of any language words or phrases.

that in the online review context, reviews that convey more positive information about the focal business are more likely to be seen as cool than reviews that convey negative and scathing information. Hence we hypothesize:

H2a. The more positive and favorable an online review is, the higher the coolness perception.

Given that individuals can combine positive and favorable information with pictorial images when posting online reviews, we argue that this combination will have a higher effect on an online reviews perception of coolness. Hence, we hypothesize:

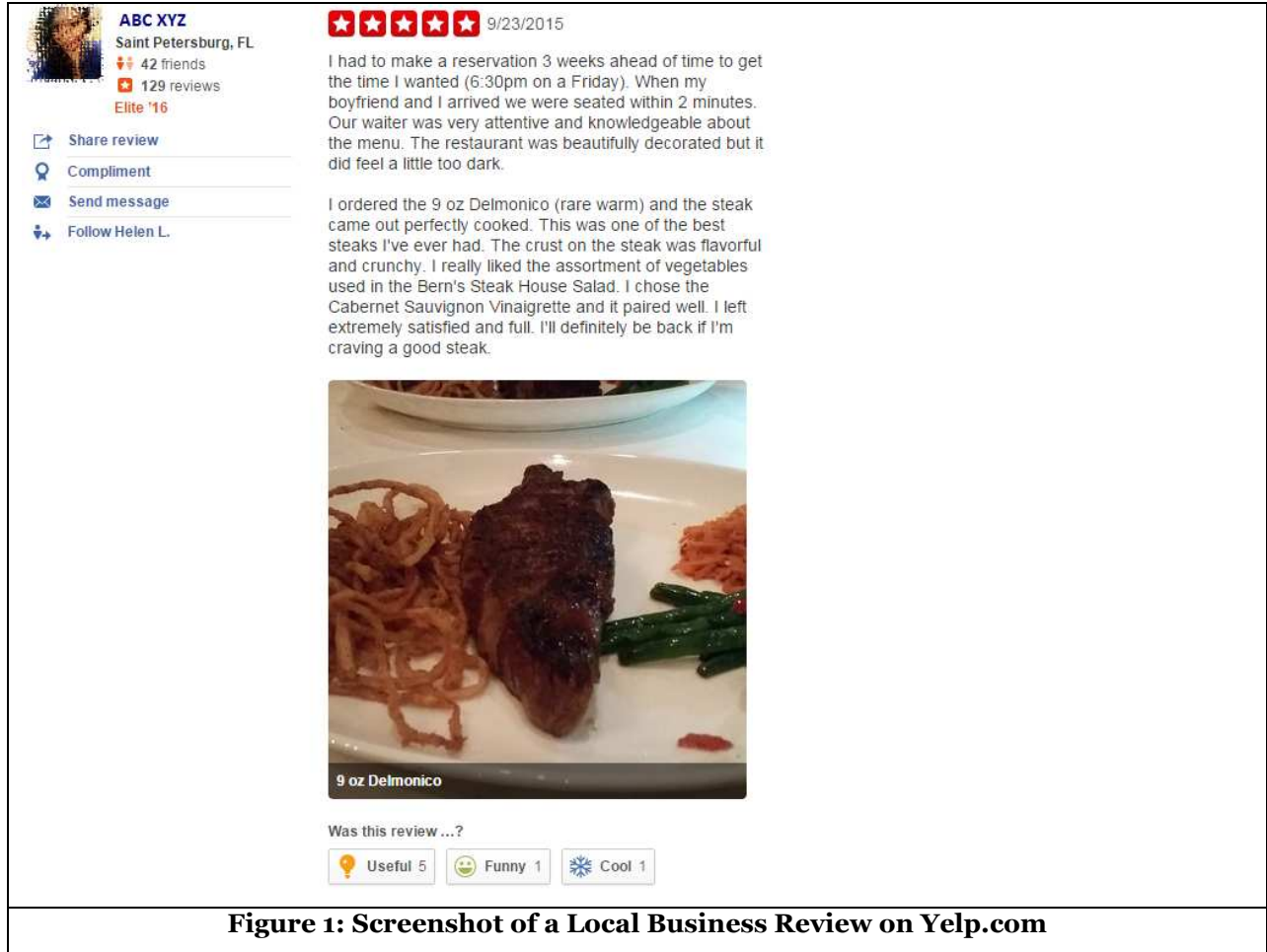
H2b. The presence of pictorial images moderates the effect of review positivity on online reviews perception of coolness. For reviews with images, the perception of coolness is higher for more positive reviews.

Method

We collected data for this study from collected from Yelp.com, a popular third-party review website. On Yelp.com, reviewers can post their opinions on services they have received from local businesses. More importantly, reviewers can add images or pictures to their reviews. For each review posted, Yelp.com asks the question “Was this review...? Useful | Funny | Cool” with the option of users responding to cool by clicking on the “cool” tab. The “cool” votes are aggregated by Yelp.com and is observable to the public whenever they access the review. Yelp.com also provides details of the reviewer such as name, location, number of Yelp friends, number of reviews posted, and if the reviewer is an “elite” reviewer.

Data Collection

We collected data on reviews posted in the Nightlife category for two cities in Florida (Tampa and Miami) between January 2015 and May 2015. We chose Nightlife category because businesses in this category sell an experience good geared towards relaxation and patrons are passionate on getting a great experience. For each review, we extracted the rating of the focal business, the number of cool votes on the review, the presence of pictures in the review, and the number of useful votes. We also extracted the characteristics of the reviewer such as the number of Yelp friends, the number of reviews written, if the reviewer checked-in at the business or not, and whether the reviewer is an elite reviewer or not. In total, we had 11633 reviews across 592 bars by 6524 reviewers.



Variables

The dependent variable is the review coolness (*Coolness*), measured by the number of coolness votes a review has received since it was posted. The variable is a count variable limited to values from 0 (for reviews with no cool vote) to an infinite number of votes.

The major explanatory variables are the rating of the review and the presence of pictorial images in the review. Review positivity is measured by the star rating of the review (*Rating*). Review with image (*Image*) was coded as a binary variable with a value of 1 if there is a picture and 0 if there is none.

We included a series of control variables in our model. First, we controlled for the number of friends a reviewer (*NumFriends*) has in his or her Yelp.com network as this may affect the coolness votes. Second, we include the number of previous reviews the reviewer has posted (*NumReviews*) and if the reviewer is a Yelp elite reviewer (*Elite*) as this may impact on their ability to post cool reviews. Third, we control for the usefulness (*Usefulness*) perception of the review as it might impact the coolness perception. Lastly we control for check-in badges (*CheckIn*) on the reviews and the length of time (*Time*) that the review has been online prior to our data being retrieved.

Table 1 shows the descriptive statistics of the full data set. About 20 percent of the reviews received at least 1 coolness vote.

Table 1: Minimum values, Maximum values, Means, Standard Deviations, and Correlations												
	Variable	Min	Max	Mean	S.D.	1	2	3	4	5	6	7
0	<i>Coolness</i>	0	23	0.398	1.260							
1	<i>Usefulness</i>	0	29	0.687	1.614	1						
2	<i>Rating</i>	1	5	3.939	1.262	-0.05	1					
3	<i>NumFriends</i>	0	4319	48.78	197.1	0.46	-0.01	1				
4	<i>NumReviews</i>	1	63.39	3026	154.5	0.43	-0.04	0.63	1			
5	<i>Image</i>	0	1	0.236	0.424	0.17	0.14	0.06	0.11	1		
6	<i>CheckIn</i>	0	1	0.361	0.480	0.21	0.07	0.20	0.28	0.31	1	
7	<i>Elite</i>	0	1	0.156	0.364	0.39	-0.01	0.37	0.55	0.16	0.34	1

Analysis Method

We used Tobit regression to test our hypotheses due to the nature of our dependent variable and the censored nature of the sample. Our dependent variable is bounded on the lower range. The main reason for using Tobit regression is the potential selection bias inherent in the sample. We do not know the number of individuals who have read the review. However, we know the number of people who have voted the review as being cool. As it is unlikely that that all readers of the review voted it as being cool, we therefore have a potential selection problem. In a case like this, using OLS or GLS may lead to biased estimates since the probability of being in the sample may be correlated with an explanatory variable (Kennedy 2003). These correlations may occur for various reasons. For instance, a review may get a lot of cool votes due to “bandwagon” effect rather than its inherent coolness. These properties make our sample one with a limited dependent variable problem.

Table 2: Summary of Results					
Variables	Tobit			OLS	
	Model 1	Model 2	Model 3	Model 4	Model 5
<i>Rating</i>		0.293*** (0.021)	0.281*** (0.023)	0.078*** (0.005)	0.074*** (0.005)
<i>Image</i>		0.258*** (0.053)	0.239*** (0.056)	0.070*** (0.016)	0.063*** (0.016)
<i>Image*Rating</i>			0.061 (0.052)		0.028 (0.014)
<i>NumReviews</i>	0.001** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.000*** (0.000)	0.000*** (0.000)
<i>NumFriends</i>	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	0.000*** (0.000)	0.000*** (0.000)
<i>Elite</i>	0.852*** (0.068)	0.838*** (0.066)	0.839*** (0.066)	0.144*** (0.021)	0.145*** (0.021)
<i>CheckIn</i>	0.416*** (0.052)	0.278*** (0.052)	0.278*** (0.052)	0.046** (0.014)	0.046** (0.014)
<i>Usefulness</i>	0.913*** (0.013)	0.909*** (0.013)	0.909*** (0.013)	0.609*** (0.005)	0.610*** (0.005)
<i>Constant</i>	-2.585*** (0.068)	-3.707*** (0.111)	-3.661*** (0.117)	-0.523*** (0.024)	-0.509*** (0.025)
<i>Time Dummies</i>	Yes	Yes	Yes	Yes	Yes
<i>Wald Test</i>	7216 (10)***	7630(12)***	7631 (13)***		
<i>Log-likelihood</i>	-7032 (12)	-6904 (14)	-6903 (15)		
<i>N</i>	11633	11633	11633	11633	11633
<i>Adj R-squared</i>				0.72	0.72

Standard errors in parentheses; * p<0.05, ** p<0.01, *** p<0.001

Model 1 shows the results for the control variables in our analysis. Hypothesis 1 posited that the presence of pictures or images in a review will increase its rating on coolness. Model 2 show that the presence of pictures is positively associated with coolness ($\beta=0.258$, $p < 0.001$), providing evidence for hypothesis 1. Hypothesis 2 posited that the more positive a review is, the more its rating on coolness. Again, model 2 shows that positive reviews are associated with coolness ($\beta=0.293$, $p < 0.001$), providing evidence for hypothesis 2. Hypothesis 3 suggest that there is an interaction effect between pictures and positive reviews; and that the interaction between pictures and positive reviews will lead to increased rating on coolness. However, model 3 shows that this hypothesis is not supported with the beta for the interaction term (image*Rating) being insignificant.

As a robustness check, we reran our analysis using the ordinary least squares regression model. The results are similar qualitatively since the OLS model did not meaningfully affect the significance or direction of the parameter estimates as seen in models 4 and 5.

Discussion and Conclusion

In this study, we investigate factors that affect the perception of online review coolness. Specifically, we examine the effect of adding pictorial images to online reviews and the impact of review positivity. We find that online reviews with pictures are perceived to be cooler than online reviews without pictures. Further, we find that perception of coolness is more for positive reviews than for negative reviews. This finding is consistent with the notion that coolness is seen more as a positive attribute than as a negative attribute (Bird and Tapp 2008; Heath and Potter 2005). However, we do not find any significance with the interaction between ratings and images. An explanation for this result could be that images are only present in very positive reviews and not present in less positive reviews. In other words, review contributors may be using pictorial images to reinforce their positive reviews and as such we cannot discern a significant differences in the hypothesized interaction effect.

Theoretical and Practical Implications

Our study makes the following contributions to the literature on online reviews. First, our study is among the first attempts to examine factors that affect coolness in the online review context. Though prior research have examined concepts like helpfulness and usefulness of reviews (Mudambi and Schuff 2010; Yin et al. 2014), there has been little investigating the factors that affect online review coolness despite the potential value of cool reviews. For instance, cool reviews can draw attention to both the focal business under review and the reviewer. Further, information systems (IS) researchers have suggested that including features that provide value beyond the functional value of usefulness in the design of IS artefacts can improve the overall utility users derive from using such IS artefact (Gill and Hevner 2013). Hence, review platforms can provide higher utility to users by including features that encourage the expression and perception of coolness among them while also helping foster a social community.

Second, our study is one of the first to investigate the value of pictures and images in online review context. Prior work investigating the effects of images and pictures have focused on its value to advertising (Edell and Staelin 1983; Starch 1966). We extend the effects of images to the online review context given that traditional online word-of-mouth has mostly been textual. We show that including pictures and images aids not only in the vividity of online reviews, but also on the user perception of the review. Review platforms like Amazon.com and Cnet.com where products are often reviewed and where individuals are not able to include pictorial images to buttress their experiences with a product may consider providing pictorial image capabilities to their review platform in order to improve the review reading experience of a user. For instance, if a reviewer writing about the print quality of a printer provides sample pictorial images of printed documents, such pictorial images may increase their review experience and enhance consumer decision making.

Third, our work contributes to the literature on strategic acquisition of attention and friends on online review platforms. Shen et al (2015) show that review contributors adopt various strategies in order to draw attention to themselves on online review platforms. Our work shows that providing cool reviews through the posting of positive reviews and the inclusion of pictorial images may be a strategy to adopt when trying to draw attention to oneself on review platforms.

As with any study, there are limitations in our research that present opportunities for future research. While our study identified two factors (ratings and pictures) that may contribute to a review's coolness, future studies can further identify other factors that may contribute to review coolness. For instance, future study may examine the textual content of reviews to see if there are particular words or word clusters that are associated with review coolness. Second, while our sample was from the Nightlife category in Yelp.com and may only be generalizable to reviews in that category, future studies may sample more categories or extend to product reviews in order to verify if our result holds. Third, since our findings is generalizable only to those who voted the review as cool; and we do not know about those who consider the review uncool or those who did not vote at all, future work can survey a more representative cross-section of consumers to confirm if our findings hold.

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